DOCUMENT RESUME

ED 129 121 FL 008 141

AUTHOR Baron, Naomi S.
TITLE The Acquisition of Indirect Reference: Functional Motivations for Continued Language Learning in Children.
PUB DATE Jun 76
NOTE 27p.; Paper presented at the International Conference on the Psychology of Language (Stirling, Scotland, June 21-26, 1976)

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Child Language; Cognitive Processes; *Language Development; Language Research; Learning Motivation; *Learning Processes; Preschool Children; *Psycholinguistics; Verbal Development; Verbal Learning; *Vocabulary Development
IDENTIFIERS *Names

ABSTRACT

This paper explores the questions of how and why children learn names for things. The acquisition of reference is set within a broader discussion of linguistic representation, which defines language as a system functioning in a three-way relationship among the individual language user, the world of experience, and the social community. It is argued that the essential function of human language is to allow indirect (rather than direct) reference, and hypotheses are presented on how the child's motivation, his assumptions about what language is for, and his level of linguistic consciousness determine the role of indirect reference in children's learning of names. In an experiment eliciting indirect reference, four naming strategies were hypothesized: overgeneralization of a real (but incorrect) name, frustration, description, and made-up names. Twelve Ss between the ages of 3;1 and 4;4 were presented strange and novel items in picture and object contexts and asked to name those items once the stimuli were removed. The least mature Ss used mostly over-generalized names. More mature Ss showed some frustration and used both overgeneralization and description. The most mature Ss showed an increased number of descriptions and used made-up names as well. (Author/KM)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED129121

The Acquisition of Indirect Reference: Functional Motivations for Continued Language Learning in Children

Naomi S. Baron
Department of Linguistics
Brown University
Providence, Rhode Island
02906 USA

Paper presented at the International Conference on the Psychology of Language, Stirling, Scotland, June 21-26, 1976

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Abstract

This paper explores the questions of how and why children learn names for things. The acquisition of reference is set within a broader discussion of linguistic representation, which defines language as a system functioning modulo the individual language user, the world of experience, and the social community. It is argued that the essential function of human language is to allow indirect (rather than direct) reference, and hypotheses are presented on how the child's motivation, his assumptions about what language is for, and his level of linguistic consciousness determine the role of indirect reference in children's learning of names.

In an experiment eliciting indirect reference, four naming strategies were hypothesized: overgeneralization of a real (but incorrect) name, frustration, description, and made-up names. Twelve Ss between the ages of 3;1 and 4;4 were presented strange and novel items in picture and object contexts and asked to name those items once the stimuli were removed. The least mature Ss used mostly overgeneralized names. More mature Ss showed some frustration and used both overgeneralization and description. The most mature Ss showed an increased number of descriptions and used made-up names as well.

I. INTRODUCTION

This paper is about two deceptively simple questions: how and why do children learn names for things. The "how" question has repeatedly recurred in the linguistic literature (e.g. Brown,1958; Quine, 1958, 1960, 1974; Nelson, 1973, 1975a;Clark, 1973; Angelin, 1975; Rosch, 1975). Most of the discussion has concerned such issues as the particular semantic domains children's early words cover (e.g. Clark, 1973), the proportion of concrete or abstract nouns in the young child's lexicon (e.g. Brown, 1958), or whether words are first learned as proper or common names (e.g. Quine, 1958). With the exception of Nelson's work (e.g. 1973), the "why" question has received considerably less attention.

The present study suggests an alternative approach to the question of how and why children learn names by setting the study of naming within a broader discussion of linguistic representation. Motivation for learning is explored, and some preliminary data are presented on the kinds of naming strategies children use when they need to identify items whose names they do not know.

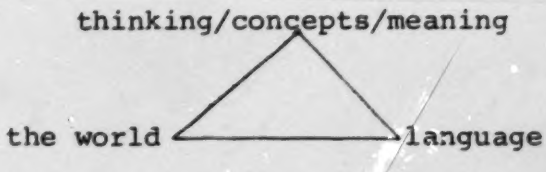
II. LINGUISTIC REPRESENTATION AND THE ACQUISITION OF REFERENCE

A. Linguistic Representation

Human language can be defined as a system of symbols which functions modulo a three-way relationship between the individual language user, the world of experience, and the social community. Language is used to represent experience, that is, to establish a correspondence between the world and an individual's representation of it. However, in order to guarantee that such experience can be shared, the correspondences must be held in common by other members

of the individual's social -- and linguistic -- community.

The problem of how a correspondence is established between experience and human linguistic representation has traditionally been viewed without reference to whether the representation is individual or social. We can take as a paradigm Odgen and Richard's (1923) notion of a referential triangle:



Philosophers, psychologists, and linguists have approached the study of representation (or reference) from different points on the referential triangle. Philosophical work in this area has been concerned with how we know what the world is like -- that is, with the study of epistemology. The empiricist philosopher's problem is that we only come to know the world through our sense impressions, which, in turn, we typically articulate through language. Thus, in drawing conclusions about what the material world is like, it is necessary to pass first through a sensory filter, and then through a linguistic filter. For the philosopher to work his way back to "reality", he is forced to confront language and perception (and, by implication, thinking) in order to understand the ways in which they may distort our knowledge of what actually is.

The psychologist's interest is in human thinking. However, in order to perceive or to think, one must perceive or think about something, and thus, unless he believes in innate ideas, the psychologist must necessarily consider the material world as input to the senses and the mind. Similarly, since one of the best indicators of perception or thinking is language, psychological experiments often become

inadvertent studies in psycholinguistics. Thus, although psychology does not directly study either experience or language, the psychologist ends up concerning himself with both.

The linguist's domain has traditionally been linguistic structure. Yet syntax and semantics involve the other branches of the referential triangle as well. Wittgenstein's picture theory of language Wittgenstein, 1961) attempted to explore the extent to which language corresponds to the world of experience. More recently, the study of language universals has turned from cataloging (e.g. Greenberg,1960, 1966) to explanation (e.g. Kay and Berlin, 1969), and has begun to question how universals of experience or of human perception and thinking determine language structures (for attempts at explanation of universals in language acquisition, see Slobin, 1973; Clark, 1973).

In each of these domains -- philosophy, psychology, linguistics -- the one important variable typically missing from the discussion of representation is that of the linguistic community. Unless we have some way of insuring that different members of the speech community have the same correspondences between experience, thinking, and language, then the communicative function of language is defeated.

Quine discusses the problem of social agreement on linguistic referents with respect to adult language users (1960) and children learning language (1974). In both cases, the problem is one of translation: if I use a word -- as an adult speaking to another adult, or as a parent teaching a child to talk, how does my interlocutor puzzle out precisely what I am referring to in the world of experience. In Word and Object, Quine creates the hypothetical example of gavagi, illustrating the impossibility of radical translation. A more

well-known example in the popular literature involves none other than Captain Cook:

> When he discovered Australia, Cook sent a sailor ashore to inquire of the natives the name of a strange animal that they had brought to the ship from land. The sailor reported that it was known as a kangaroo. Many years passed before it was learned that when the natives were asked the name of the animal, they replied "kangaroo" and were simply asking, "What did you say?" (Mueller, 1974:vi)

The same problem of misunderstood referent continually arises when children learn to speak. Children underdetermine the semantic domain of words, calling tigers and elephants "dogs" because they have four feet. They overdetermine words, believing, for instance, that all ice cream is vanilla since that is the only flavor served at home. Or they misdetermine domains altogether, like a child who believes that God "drove" Adam and Eve out of the Garden of Eden in a four door sedan.

B. Direct and Indirect Reference

In discussing linguistic reference, we need to know why and under what conditions humans use language to refer in the first place. Reference can be considered with respect to a scale of geographic or temporal proximity between experience and language. At one end of the scale we can speak of collocation of entity and observer such that the observer can actually touch or pick up the entity in question. At the next step removed, the entity is still in visual range (and can be pointed to), although it is not in physical reach. If language is used to refer to entities in either of these instances, we shall refer to such reference as direct reference. At the other end of the spectrum is indirect reference, that is, linguistic representation used to refer to entities which

are not present in the language user's visual field, either because they do not exist at the present time (e.g. my great-great grandfather) or because they are geographically distant (e.g. Pago Pago). In the recent philosophical literature, Quine (e.g. 1960) has dealt most extensively with direct reference, while Bhattacharya (1975) has explored the nature and significance of indirect reference.

Both phylogenetically and ontogenetically, human language initially grows out of contexts in which linguistic symbols can be matched (if only approximately) with items of experience present in the visual field at the time of naming. However, the primary use of human language is for making indirect reference, that is, for referring when the referent is not within view. When it is necessary to refer to something out of the visual field for which the speaker and interlocutor do not share a common term, a description can be provided, which, in turn may later by replaced by a conventional name or nonce form which both parties agree upon. Phylogenetically, indirect reference enables man to plan a hunt, to warn his group of danger, to engage in exchange, to form mythologies and religion, to compose histories, and to develop culture. Ontogenetically, children make increasing use of indirect reference in learning to function with individuals outside their immediate family group who need more information from the child than a cry or a pointing finger to discern the child's intent.

The centrality of indirect reference to human survival and civilization becomes clearer through reflecting upon the importance of indirect reference in domains other than face-to-face spoken language. Practically all of art has as its function the representation of something which is not present. (Only in such places as current

school year books does one even have the opportunity to juxtapose the original and the representation.) Similarly, if we consider written representation -- ranging from Maya glyphs to Chinese characters -- we find that practically all writing has as its function the representation of an experience for someone distant in time or space (or both). Turning back to spoken language, we recognize the same emphasis on indirect reference. From the evening news to a patient's account of his upset stomach, from a lecture on ancient Greece to a diner's request for a rare filet mignon, we continually use language because we need to refer to times of experience which we cannot indicate by either touching or pointing. The use of direct reference ("That's a big fish you caught" or "Please pass those potatoes") accounts for a comparatively small portion of human speech.

We have hypothesized that although (a) human language initially grows out of collocations of word and object, (b) human language is basically used to refer to elements of experience which are geographically or temporally distant. Given these basic hypotheses, we are able to return to the study of the acquisition of reference by children, and see what specific forms these hypotheses take developmentally and how they can be tested.

C. The Acquisition of Reference

In the early language acquisition literature (e.g. McCarthy, 1946), studies of lexical development typically discussed the so-called naming explosion which was said to occur in children somewhere between the ages of 1 1/2 and 2. While perpetuating this assumption that all children go through a naming explosion (e.g. Menyuk, 1971),

more sophisticated work has dealt with the semantics of early naming, ranging from intuitive models of overgeneralization (e.g. Leopold, 1939) to semantic feature theories (e.g. Clark, 1973) and beyond (e.g. Angelin, 1975; Nelson, 1975b). All of these theories, when taken in conjunction with a functional analysis of language of the sort developed by Halliday (1975) or Nelson (1973) would seem to be easily subsumed under the study of "referential" language.

There are, as I see it, four distinct but interrelated problems with the study of the acquisition of reference thus far. To begin with, some children do not seem to go through the so-called naming explosion, that is, there is no clearly identifiable period of early language acquisition which is characterized by naming things or people. Second, since everyone does eventually learn a vast number of names -- whether it be through a naming explosion or some more gradual process (see Nelson, 1975a) -- an explanatory theory of language acquisition will need to account for what motivates children to learn all of these additional labels.

Third, we need to question whether naming behavior is properly seen as serving a referential function. At Brown University, we have been studying the functions children use language for. Instead of assuming with Halliday (1975) that all children learn the same functions in the same chronological order, we have focused on differences in language use between children. Nelson (1973) hypothesized that in the earliest stages of language acquisition, children may come up with a variety of notions about what language is for. Some children, so she argues, hypothesize that language is a tool for referring to things (so-called referential children) while others assume that language is a means of building up social bonds between

people (so-called expressive children).

At Brown, we have worked out a much more fine-grained analysis of language functions in children. Utterances are divided into three major categories: object-oriented language (referential language), self-oriented language (expressive language) and a combination of second-person and self-oriented language (interpersonal language). Each of these major categories is then further divided into sub-categories which are defined both syntactically and semantically. We have, however, had a great deal of difficulty in classifying the speech of children according to function when we considered the actual context in which the speech was being used instead of simply looking at syntactic structure. Many of the utterances which were classified as referential on a strict syntactic scoring system were clearly being used expressively -- to call attention to oneself by showing one's knowledge of names, or interpersonally -- that is, as a way of establishing social communication with another person by engaging their interest in the named object. (We might note that Halliday (1975) makes a similar point about how one linguistic form may actually be serving a different function. Moreover, Halliday argues that the informative function -- what we are calling the referential function -- is the last one to be learned.) Once one recognizes that the purpose of human language is, at base, social interaction, it becomes difficult to uphold a strict functional distinction which implies that referential children are applying labels simply for the sake of being referential. While it is true that at some point children must practice applying names to things, it is not obvious that most of even a significant portion of children's application of referential terms is directly connected with

learning names of things per se.

The fourth problem relates to the fact that with very few exceptions (recent unpublished work of Roger Brown's is a case in point), the literature on the acquisition of reference deals almost exclusively with the question of direct reference, ignoring the question of how situations requiring indirect reference may affect children's learning of names.

We face an apparent paradox in children's acquisition of names: although most actual learning of names takes place when adults attach labels to objects for children while those objects are visually present (e.g. "This is a ball. Say 'ball'."), we have argued that conditions where indirect reference is needed provide the primary motivation for learning names. The paradox is solved, however, once we recognize that we are distinguishing between learning on the one hand, and motivation on the other. We are hypothesizing that children's linguistic failure to make intelligible reference because of restricted lexicon serves as an impetus for learning names once those objects again come into view.

There are two qualifications which must be added to this hypothesis. First, we are not claiming that all children are primarily stimulated to learn names because of their referential failures in situations necessitating indirect reference. Indeed, we hypothesize that those children which we at Brown or Nelson would classify as referential may tend to acquire the majority of names for people or things through direct reference, that is, when the people or objects are within their visual field. These are the kind of children who seem to be most prevalent in modern American society -- apparently because American adults today are highly referential parents --

and whose early language acquisition is appropriately characterized by the "naming explosion". While these children may have the linguistic ability to make indirect reference, they will not do so until motivation develops to refer to something or someone not present. Instead, it is the expressive (or what we are calling personal and interpersonal) children who, we hypothesize, will tend to learn a large number of names only after finding themselves in social contexts which demand them to know names for things which are not yet in their lexicons. In non-American societies, it is quite possible that these latter children are far more prevalent than current American data would seem to suggest. At Brown, we are currently undertaking a comparative functional study with Portuguese-speaking children to test this hypothesis.

The second qualification is that we must distinguish between indirect reference as a context motivating the learning of a particular name, and as a context motivating the child to increase his or her lexicon in general. For referential children, it is quite likely that the former will be the case, while for expressive children, the latter. That is, we are suggesting that children who already know the names of a large number of items may be specifically motivated to learn a name which was needed in the item's absence. Children whose initial lexicons contain relatively few names for objects may be more generally motivated to learn names once they encounter enough situations in which they find their referential abilities inadequate for communicating when the referents to which they wish to draw attention are not visually present.

These hypotheses will be tested in a longitudinal study which is just getting under way at Brown. In the meanwhile, however, it is

possible to examine a related question, namely, when children are confronted with situations in which they need to refer to objects which are not visually present, what do they do? Both children and adults continually find themselves in this condition. While an indirect result of the experience may be to learn the correct name for something when the item reappears, communication does not -- or cannot -- always wait for the reappearance of the vanished referent. Instead, language users of all ages must come up with strategies for making themselves understood. What we have chosen to examine experimentally here is what those strategies are in young children.

III. Elicited Indirect Reference: A Pilot Study

We designed an experiment to determine the linguistic strategies children use when asked to make indirect reference to an object for which they do not already have a name which is shared by other members of the linguistic community. We hypothesized that four general strategies would be used, emerging in the following chronological order:

(1) overgeneralization of related name currently in child's vocabulary
(2) frustration
(3) description
(4) creation of novel names

Just as linguistic stages overlap in syntactic development (see Brown, 1973), naming strategies may overlap as well. It was hypothesized that the least generally linguistically advanced children -- who may or may not be chronologically youngest -- would also have the smallest vocabularies and the lowest level of linguistic consciousness (see Baron, 1976) about the relationship between words and their

referents. It was therefore predicted that when asked to assign names to novel items, these children would continue the same strategy followed in normal conversational experience, namely assuming that every item has a name, and "overgeneralizing" a name they already know to that item. In using the term "overgeneralization", we are not, however, assuming that the child necessarily fails to see any differences between the items which the linguistic community typically identifies by the term, and the items to which the child is overgeneralizing the word. Indeed, it is equally plausible that the child overextends the word simply because there is none other available, and he or she assumes every object must have a name. The young child's lack of metalinguistic ability to describe his or her semantic assumptions often leads us to credit young children with less sophisticated linguistic knowledge than they actually have. For a discussion of the difference between linguistic knowledge and the ability to talk about that knowledge, see Baron, 1976.

As children become more linguistically advanced -- and linguistically couscious -- they begin recognizing that names are separable from the entities they represent, that names can be given to unnamed entities, and that names are effective representations only if their referents are agreed upon by the linguistic community. The results of these realizations may initially be frustration (often signaled by "I don't know" or silence) or an attempt to describe the item through circumlocution rather than with a definite name.

As the child continues to mature linguistically -- and metalinguistically -- this frustration will subside. That is, the child becomes aware that failure to know an item's name need not result in a breakdown in communication. The child may either increase the amount of descriptive language used or, demonstrating his or her metalin-

guistic knowledge that names are not intrinsic parts of the entities they label, may make up new names for the items. In this last instance, in order to insure that the child's interlocutor will understand the referent of the nonce form, the new name will need to be given with the referent visually present, or alternatively, with an accompanying description.

A. Design

The subjects were twelve children between the ages of 3;1 and 4;4 (six of the children being between 3;1 and 3;8, and six between 3;9 and 4;4). Two experiments were run for each subject, the first involving sixteen (two-dimensional) pictures, and the second, sixteen three-dimensional toys. In each set, four items served as controls, depicting common objects like a toothbrush or a mouse. Four items depicted real animals like a llama or a tapir, whose names all but the most lexically advanced children were unlikely to know. Another four items depicted made-up animals -- such as a rodent-like creature with an elephant's nose, or a striped animal with webbed feet and three eyes. Finally, four items depicted fantastic objects -- such as a slinky with pipe-cleaners coming out of the ends, or an orange and green object something like an autoharp. The order of presentation was counterbalanced between subjects, as was the order of experiments.

Two experimenters worked with each subject. The first experimenter (E_1) read the child a short story whose moral was, it is useful to be able to name things if you want someone else to know what you are talking about. E_2 was then sent out of visual range. E_1 presented the first four experimental items to the child,

giving him or her a chance to become familiar with their properties. The child was told that he or she would have to give names to these objects after E_2 returned (i.e. elicited indirect reference), and that E_2 would later try to identify the objects by hearing their names. The items were then placed in a bag and E_2 was recalled. The child was first asked to supply names for all four items (which were still out of sight). After naming them, the objects were returned to view, and E_2 was asked to guess which names went with which items. The same procedure was followed for all four sets of items.

B. Results

Responses were scored in five basic categories, three of which were further subdivided:

(1) frustration ("I don't know", silence)

(2) use of real (but incorrect) name
   a. superordinate category (e.g. stimulus: tapir
      response: animal)
   b. similar semantic field based on common attribute or form
      (e.g. stimulus: platypus
      response: duck)

(3) description
   a. superordinate category (e.g. "a funny X", "a kind of an X")
   b. similar semantic field (e.g. "like an X")
   c. description of attribute or form (e.g. "stripes with squares")
   d. description of function ("you can't write on it")

(4) made-up name
   a. proper name (e.g. "Toby")
   b. nonsense word (e.g. "minosaur")
   c. made-up element plus real element (e.g. "tweddle bug")

(5) correct name (control items, strange but real animals)

The responses summed across experiments and items are presented in Table 1.

---------- Insert Table 1 here ----------

The most common naming strategy used was type 2 -- use of a real (but incorrect) name. Of the 384 total responses, 151 were overgeneralized real names. The next highest response was correct identification (applicable only to control items and the strange but real animals). Correct scores (type 5) accounted for 98 out of 384 responses, of which 85 were to control items, and 13 to strange but real animals. The use of descriptions (response type 3) was the next most frequent strategy with 68 instances, followed by frustration (type 1) with 50 instances,and made-up responses (type 4) with 17.

Several differences between age groups emerged. The majority of frustration responses (38 out of 50) occurred among the younger subjects. The reverse phenomenon occurred with made-up names: only 3 out of 17 made-up names were produced by the younger group. The difference for type 2 and type 3 responses was less pronounced. The younger group produced slightly more overgeneralized responses than the older (80 vs. 71), and slightly fewer descriptions than the older children (29 vs. 39). Finally, the number of correct responses increased with age (42 vs. 56), with the number of correct responses to strange but real animals being only 2 for the younger group and 11 for the older.

Tables 2 and 3 summarize the data by experiment (picture vs. object stimuli) and by stimulus type (control vs. strange but real animal vs. made-up animal vs. made-up object).

---------- Insert Table 2 here ----------

When the data are broken down by experiment, all but one of the age differences described in Table 1 continue to obtain. The only exception is type 3 responses (description) where the younger children used slightly more descriptions on the object experiment than did the older children (19 vs. 17).

The most striking difference between experiments occurred in frustration responses. Three-fifths (30 out of 50) of the frustration responses came in the picture experiment. Frustration with pictures was particularly high for the younger children (23 frustration responses to pictures, 15 to objects). Among the younger children, an equal amount of overgeneralized real names was used for pictures and objects (40 vs. 40), but use of descriptions was less common for pictures than for objects (10 vs. 19). Among the older children, there were slightly fewer overgeneralizations for pictures than objects (33 vs. 38), slightly more descriptions for pictures than objects (22 vs. 17), and almost twice the number of made-up names for pictures as for objects (9 vs. 5).

---------- Insert Table 3 here ----------

Analysis by stimulus type shows the same age differences for each stimulus type as found for the data summed across experiments and items (Table 1). Summing across ages, the most frustrating stimuli were strange animals; the items most often assigned overgeneralized names, made-up animals; and the items most often described, made-up objects. However, none of these differences were sizable. With the exception of the older group's frustration responses, which were most frequent for made-up objects, all of these trends held for both the

younger and older subgroups.

C. Discussion

The data support the existence of the four hypothesized naming strategies, and indicate that the proposed chronological ordering is largely correct. It is clear from the data, however, that there is a great deal of overlap in naming strategies, particularly in the use of overgeneralization and description. The predominance of overgeneralizations is perhaps best explained by the fact that the children were instructed to produce a name as a way of identifying the item they had seen, rather than to produce a description. It is possible that if the instructions had been presented more neutrally, the subjects -- particularly in the older group -- would have given more descriptions.

Frustration responses decreased with age as predicted. The raw data show, however, that among the two youngest subjects (both age 3;1) there were no frustration responses at all. We initially hypothesized that frustration would only begin to appear in children who had gained some metalinguistic knowledge about the relation between words, objects, and the importance of shared convention. The limited data we have on the youngest subjects would seem to indicate that this hypothesis is correct, i.e. that the youngest subjects had no basis for questioning the plausibility of the task presented to them.

We had further hypothesized that the least generally linguistically advanced and least linguistically conscious children would have the smallest vocabularies. The higher number of correct responses (i.e. to control and strange but real items) among the older children would suggest that the older children -- who rely less on overgenera-

lization than the younger children -- have larger vocabularies than their younger counterparts.

When the data are analyzed subject by subject, it is possible to identify two maximally contrasting naming patterns which, we should point out, do not always correlate with age. The least linguistically mature children (e.g. S_2, S_9, S_{12}, S_{14}) overwhelmingly favored the use of overgeneralized (but incorrect) real names, showing practically no frustration and creating very few made-up names. When these children used descriptions, they were nearly always of the type 3c, i.e. description of attribute or form, which requires only superficial analysis. The more linguistically mature children (e.g. S_{11}, S_{13}, S_{15}) used more descriptions than overgeneralizations. Moreover, these descriptions often took the form of superordinate categories (e.g. "a funny kind of animal"), which indicates an awareness of the distinction between levels of semantic classification. The same three subjects also accounted for the vast majority of made-up names (13 out of a total of 17), which we have argued requires a certain level of linguistic consciousness. Frustration responses were infrequent among the most advanced subjects, with the largest amount of frustration existing, as hypothesized, among the subjects falling between the least and most advanced in naming patterns.

Neither experimental mode nor type of stimuli had any consistent effect on naming strategies. The only measurable difference was seen in frustration on the picture vs. the object experiment. Higher frustration with pictures -- particularly among the younger children -- may indicate that the process of naming makes more sense with tangible objects than with two-dimensional representations. This finding is consonant with numerous experimental findings that children

respond better to three-dimentional stimuli than to two-dimentional items.

IV. CLOSING REMARKS

This paper has explored the question of how and why children learn to use language to refer. In discussing linguistic representation, we have distinguished between direct and indirect reference, and have hypothesized that such factors as motivation, functional predilections, and levels of linguistic consciousness may contribute to the child's acquisition of reference.

The experimental evidence provided support for the hypothesized developmental stages in naming strategies in elicited indirect reference. There are , however, many empirical questions which remain to be asked. First, we will need to determine whether children use different naming strategies when asked to identify an item in direct or indirect reference. Second, we will want to see whether the naming strategies we have described under these experimental conditions approximate patterns used in spontaneous settings. And third, it will be interesting to explore the extent to which differences between children's naming strategies correlate with differences in their general functional use of language.

ACKNOWLEDGMENTS

I am indebted to Nikhil Bhattacharya and Katherine Nelson for raising some of the issues discussed in this paper. I also wish to thank the members of the Child Language Acquisition class at Brown in the spring of 1976 for their role as experimenters, and Sun Chang for her contributions to our functional analysis of young children's language.

Table 1. Responses Summed Across Experiments and Items

		Response Type					
		1 Frustration	2 Real (incorrect)	3 Description	4 Made-Up	5 Correct	Total
Age	3;1-3;8	38	80	29	3	42	192
	3;9-4;4	12	71	39	14	56	192
	Total	50	151	68	17	98	384

Table 2. Responses Summed by Experiment

			Response Type					
		Experiment	1	2	3	4	5	Total
Age	3;1-3;8	Pic	23	40	10	1	22	96
		Obj	15	40	19	2	20	96
	3;9-4;4	Pic	7	33	22	9	25	96
		Obj	5	38	17	5	31	96
	Total	Pic	30	73	32	10	47	192
		Obj	20	78	36	7	51	192

Table 3. Responses Summed by Stimulus Type

		Response Type					
	Stimulus Type	1	2	3	4	5	Total
Age 3;1-3;8	Control	5	2	1	0	40	48
	Strange Animal	14	23	8	1	2	48
	Made-Up Animal	9	29	8	2	0	48
	Made-Up Object	10	26	12	0	0	48
Age 3;9-4;4	Control	0	0	2	1	45	48
	Strange Animal	3	20	8	6	11	48
	Made-Up Animal	4	28	13	3	0	48
	Made-Up Object	5	23	16	4	0	48
Total	Control	5	2	3	1	85	96
	Strange Animal	17	43	16	7	13	96
	Made-Up Animal	13	57	21	5	0	96
	Made-Up Object	15	49	28	4	0	96

REFERENCES

Angelin, J. (1975). The child's first terms of reference. To appear in the special issue of the Bulletin de Psychologie on Semantic Memory by S. Erlich and E. Tulving.

Baron, N. (1976). Linguistic consciousness: prerequisites for learning to read and write. Ms.

Bhattacharya, N. (1975). Knowledge and Human Practice: Empirical Realism and the Epistemology of Karl Marx. Unpublished Ph.D. Dissertation, Boston University.

Brown, R. (1958). How shall a thing be called? Psychological Review 65, 14-21.

Brown, R. (1973). A First Language. Cambridge (Mass.): Harvard University Press.

Clark, E.V. (1973). What's in a word? In T.E. Moore, ed., Cognitive Development and the Acquisition of Language. New York: Academic Press.

Greenberg, J.,ed. (1960). Universals of Language. Cambridge (Mass.): M.I.T. Press.

Greenberg, J. (1966). Language Universals. The Hague: Mouton.

Halliday, M.A.K. (1975). Learning How to Mean. London: Edwin Arnold.

Kay, P. & Berlin, B. (1969). Basic Color Terms. Berkeley: University of California Press.

Leopold, W. (1939-1949). Speech Development of a Bilingual Child, 4 vols. Evanston: Northwestern University Press.

McCarthy, D. (1946). Language development in children. In L. Carmichael, ed., Manual of Child Psychology. New York: John Wiley.

Menyuk, P. (1971). The Acquisition and Development of Language. Englewood Cliffs, N.J.: Prentice-Hall.

Mueller, R. (1974). Buzzwords. New York: Van Nostrand.

Nelson, K. (1973). Structure and Strategy in Learning to Talk. Monographs of the Society for Research in Child Development, serial no. 149, vol. 38.

Nelson, K. (1975a). The nominal shift in semantic-syntactic development. Cognitive Psychology 7, 461-479.

Nelson, K. (1975b). Cognitive development and the acquisition of concepts. Paper presented at the conference on "Schooling and the Acquisition of Knowledge," San Diego, Nov., 1975.

Ogden, C.K. & Richards, I.A. (1923). The Meaning of Meaning. New York: Harcourt, Brace.

Quine, W.V.O. (1958). Speaking of objects. Proceedings and Addresses of the American Philosophical Association. Yellow Springs, Ohio: Antioch Press, 5-22.

Quine, W.V.O. (1960). Word and Object. Cambridge (Mass.): M.I.T. Press.

Quine, W.V.O. (1974). The Roots of Reference. La Salle, Ill.: Open Court.

Rosch, E. (1975). Basic Objects in Natural Categories. Working Paper No. 43, Language Behavior Research Laboratory, Berekely, California.

Slobin, D. (1973). Cognitive prerequisites for the development of grammar. In C. Ferguson and D. Slobin, eds., Studies of Child Language Development. New York: Holt, Rinehart and Winston, 175-208.

Wittgenstein, L. (1961). Tractatus Logico-Philosophicus(Pears & McGuinness, trans.). London: Routledge & Kegan Paul.